

paragraph, as containing subject matter not described in the specification,

- claims 11 – 14 were rejected under 35 U.S.C. §102(b) as being unpatentable over Ciman (Italy 1188128),
- claims 19 – 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ciman,
- claims 22 – 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ciman in view of Yashugin (RU 2002400 C1),
- claims 15, 28, 29, and 44 – 46 were objected to as being dependent on a rejected base claim and would be allowable if presented in independent form,
- claims 2 – 8, and 10 were objected to as being objected to as being dependent on a rejected base claim; but allowable if their independent claims are allowed, and
- claims 16 – 18 and 30 – 43 were allowed.

**Claims 1 – 46 are pending in the application.**

For the reasons set forth below, Applicant respectfully submits that all remaining claims in this application are patentably distinct over the prior art of record. Reconsideration and allowance of all pending claims in the application are respectfully solicited.

Offer to Surrender the Original Letters Patent

The Examiner has requested that the offer to surrender the original patent be made as required under 37 C.F.R. §1.178. This request has previously been offered on page 2, paragraph 3 of the REISSUE APPLICATION DECLARATION BY THE INVENTOR submitted to the USPTO on April 12, 2001. Applicant respectfully submits that the requested information has been supplied.

Rejection of Claims 1 and 9 under 35 U.S.C. §251

The Examiner rejected claims 1 and 9 under 35 U.S.C. §251 for allegedly attempting to recapture previously surrendered material. This rejection was discussed during telephonic Interviews between the Examiner and the attorney-of-record as summarized below and in the Interview Summary of June 13, 2002. As a result of these Interviews, the Examiner has indicated that the rejection has been reconsidered, and that the rejection will be withdrawn. Applicant gratefully acknowledges the Examiner's withdrawal of this rejection.

The telephonic Interviews of June 3, 2002 and June 13, 2002 included a discussion of the rejection of claims 1 and 9 under 35 U.S.C. §251 for allegedly attempting to recapture previously

surrendered material. In those discussions, the attorney-of-record indicated to the Examiner that the claim amendments objected to by the Examiner in the rejection were made to correct a typographical error and was not intended to change the scope of the claims. Specifically, PRELIMINARY AMENDMENT "B" of February 16, 2002 included amendments of claims 1 and 9 that changed the recitation - - heating the supersaturated steam - - to read "heating the saturated steam," broadens the scope of the claims with respect to matter previously surrendered during prosecution of the original patent. As indicated by the attorney and noted in that Amendment, the purpose of amending the claims was to correct the wording of the claims and provide antecedent basis for the heated steam, and was not to affect a change in the scope of the claims.

Rejection of Claims 19, 24, 27, 32, 35, 39, 42, and 43 under 35 U.S.C. §112, first paragraph

Claims 19, 24, 27, 32, 35, 39, 42, and 43 were rejected under 35 U.S.C. §112, first paragraph as containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Applicant respectfully traverses this rejection as the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date of the original patent, Applicant was in possession of the claimed invention.

To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, e.g., *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116. The written description requirement is satisfied for a claim if the specification, including originally filed claims, conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, Applicant was in possession of the invention as claimed. See, e.g., *Vas-Cath, Inc.*, 935 F.2d at 1563-64, 19 USPQ2d at 1117.

The Examiner has asserted that claims 19, 24, 32, and 39 do not support claims to defoliation of cotton, that claims 27, 35, and 42 do not support claims to inhibit growths of suckers or canes on nut trees, and that claim 43 does not support claims to fumigate mycelia.

Applicant has described the object of the claimed invention as being to "provide in the field agricultural uses of superheated steam that may be selectively delivered for applications such as fumigation, weeding, defoliation, and drying" (col. 2, lines 39 – 43). As to the rejection

of claims 19, 24, 32, and 39 to defoliating cotton, the specification includes embodiments for the defoliation of “a vine 2, tree, shrub or the like” (col. 4, lines 8 – 10). Giving the stated objectives of the invention, the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date of the original patent, Applicant was in possession of the invention of claims 19, 24, 32, and 39. Specifically, it would have been obvious to one skilled in the art that the inventor had in his possession the claimed application of superheated steam to defoliate cotton.

Regarding the rejection of claims 27, 35, and 42, the intended use of superheated steam for inhibiting growths of suckers or canes on agricultural plant is clearly elucidated. At col. 5, lines 1 – 8 the specification states:

[a]lthough the just described apparatus is particularly useful for defoliation of basal leaves on grape vines, it can readily be used to direct superheated steam adjacent to the area where root stock has been grafted to the desired grape variety. Stray suckers or canes sometimes tend to grow from the root stock below the graft point, and the inventive apparatus can be used to remove these undesirable suckers by application of the superheated steam.

Thus, Applicant clearly intended that superheated steam can be used for inhibiting growths of suckers or canes on agricultural plant, as claimed in claims 27, 35, and 42, and it would be clear to one of ordinary skill in the art that Applicant was in possession of the inventive use of superheated steam as described in those claims.

Lastly, Applicant clearly describes the use of superheated steam for fumigating, specifically for field agricultural uses. While the specification does not explicitly refer to the fumigation of mycelia, mycelia are a well-known crop infection that can be killed by fumigation. It would thus be clear to one of ordinary skill in the art that the specification supports claim 43, and that Applicant was in possession of the inventive use of superheated steam as described in that claim.

Rejection of Claims 11 – 14 under 35 U.S.C. §102(b) as being unpatentable over Ciman

Claims 11 – 14 were rejected under 35 U.S.C. §102(b) as being unpatentable over Ciman. Applicant respectfully traverses this rejection, as Ciman does not anticipate claims 11 – 14.

Ciman describes an apparatus to kill weeds by application of “steam.” Specifically, Ciman discloses an apparatus that is capable of selective and localized delivery of water for the “ground weed killing” of weeds in a field, while not harming surrounding plants or soils. (See

the first three paragraphs of the Description of Ciman, beginning at the bottom of page 7). Ciman does not disclose or suggest the apparatus is useful for anything less than the killing of a plant – there is no teaching, suggestion or indication that only a portion of a plant can be destroyed, as in defoliation.

Ciman also describes the apparatus for generation and delivery of what he terms “steam.” The device of Ciman heats water in a heat exchanger and by recovery of exhaust gas to a high temperature and pressure – the disclosed and optimum conditions are stated as a temperature of about 250 °C and a pressure of 50 atmospheres, absolute. Although the term “steam” is used, an examination of the thermodynamic state of the water at the conditions disclosed by Ciman reveal that his use of the word “steam” is a misnomer. Specifically, with reference to thermodynamic steam tables, it is easily seen that the heated, pressurized water of Ciman is a compressed liquid that does not contain any vapors. (See, for example, the steam charts in Van Wylen and Sonntag, Fundamentals of Classical Thermodynamics, 2<sup>nd</sup> edition, Table 1).

To deliver the compressed liquid of Ciman to a plant, Ciman expands the heated liquid through sprinklers. Thermodynamically, this step is the isentropic expansion of the compressed liquid at 250 °C, 50 atmospheres to a pressure of one atmosphere, resulting in a steam having a quality of ~ 25% - a very wet steam.

Independent claim 11 recites 1) generating a flow substantially comprising superheated steam, and 2) delivering the flow of superheated steam to a plant sufficient to at least partially defoliate said plant. Ciman does not disclose generating a flow substantially comprising superheated steam. The flow of Ciman is generated as a flow of hot, high temperature water that is thermodynamically classified as a compressed liquid. In addition, the flow delivered by Ciman (expanding the generated steam to one atmosphere) is a wet steam, not a superheated steam as in claim 11.

Additionally, claim 11 recites delivering the flow to at least partially defoliate a plant. Defoliate refers to depriving a plant of leaves, especially prematurely (Webster’s Collegiate Dictionary, 10<sup>th</sup> Ed.). In contrast, Ciman discloses the complete killing of a weed, not merely depriving the weed of its leaves.

Ciman thus fails to disclose each of the elements of independent claim 11 and thus does not anticipate that claim. Since Ciman does not anticipate claim 11, it also does not anticipate

claims 12 – 14, which depend on claim 11. In addition, there is no teaching, suggestion or motivation within Ciman or any of the other references of record, either individually or in combination, to defoliate using a flow of superheated steam. Thus, Ciman cannot establish a *prima facie* case of obviousness for claims 11 – 14.

Rejection of Claims 19 – 21 under 35 U.S.C. §103(a) as being unpatentable over Ciman

Claims 19 – 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ciman. Applicant traverses this rejection on the grounds that a *prima facie* case of obviousness has not been established. In particular, establishment of a *prima facie* case of obviousness requires that the prior art reference must teach or suggest all claim limitations.

The Examiner has stated that it would have been obvious to one of ordinary skill to modify the method of Ciman for defoliating. Claims 19 – 21 depend on independent claim 11, which recites the steps of “generating a flow substantially comprising superheated steam; and delivering the flow of superheated steam to a plant ...” As noted in the discussion of the rejection of claims 11 – 14, Ciman teaches the use of water generated at conditions that results in a hot, high temperature compressed liquid, and that delivering the flow to a plant would require expanding that water to one atmosphere, resulting in a wet steam. Ciman thus teaches the use of a compressed liquid and possibly a wet steam. There is no teaching or suggestion in Ciman to generate a flow substantially comprising superheated steam. In addition, there is no motivation within either Ciman or within the knowledge of one of ordinary skill in the art to modify the compressed liquid of Ciman to generate or deliver a superheated steam. In summary, a *prima facie* case of obviousness has not been established as there is no teaching or suggestion within Ciman or within the knowledge of those of ordinary skill in the art to deliver superheated steam for defoliating, as claimed in claims 19 – 21.

Rejection of Claims 22 – 27 under 35 U.S.C. §103(a) as being unpatentable over Ciman in view of Yashugin

Claims 22 – 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ciman in view of Yashugin. Applicant traverses this rejection on the grounds that a *prima facie* case of obviousness has not been established. In particular, establishment of a *prima facie* case of obviousness requires that the prior art reference must teach or suggest all claim limitations.

Claims 22 – 27 depend on independent claim 22, which recites, in part, generating a flow

of superheated steam and delivering the flow of superheated steam to a plant having a graft sufficient to inhibit the growth of suckers or canes.

The Examiner has stated that Ciman discloses a device for generating a flow substantially comprising superheated steam to inhibit the growth of suckers or canes. As noted previously, Ciman discloses a device for generating compressed water and delivering a wet steam, and does not generate superheated steam as the Examiner states. In addition, claim 1 of Ciman recites killing weeds, not inhibiting the growth of suckers or canes as stated by the Examiner.

Yashugin discloses the use of combustion gas products for defoliating cotton. Combustion of hydrocarbons in air typically produces ~20% water, limited by the production of carbon dioxide and the large fraction of nitrogen in air, and thus cannot generate a flow substantially comprising superheated steam. Thus, there is no teaching or disclosure in Yashugin to use a flow substantially comprising superheated steam, as claimed. In addition, there is no motivation or suggestion for substituting the combustion gases of Yashugin with a flow substantially comprising superheated steam for defoliating plants, and there is no apparent way of modifying Yashugin to produce a flow substantially comprising superheated steam – Yashugin only discloses discharging combustion gases directly onto cotton and does not have a heat exchanger for producing superheated steam.

The Examiner has stated that Yashugin discloses the application of steam to cotton, and that this can be extended to the application to plant with grafts, since cotton is a species defined by Applicant as having a graft. The Examiner is clearly using statements by Applicant in the present patent application, thus basing the rejection on an improper use of hindsight reasoning (see MPEP §2145.X.A). There is no motivation within any of the cited references or the knowledge of one skilled in the art to modify or combine the references to obtain the claimed invention. Even if the this use of hindsight were admissible, Yashugin teaches defoliation and Ciman teaches killing weeds, and there is no teaching or suggestion of the claimed inhibiting of a growth of suckers or canes on the graft.

In summary, the Examiner has relied on improper hindsight to present a case of *prima facie* obviousness. Even without the use of hindsight, the combination of the cited references with the knowledge of one of ordinary skill in the art fails to teach or suggest each limitation as claimed in claims 22 – 27. Specifically, there is no teaching or suggestion or motivation for

modifying the references to generate and deliver a flow of superheated steam, and in addition there is no teaching, suggestion or motivation for modification of the references to treat a plant with a graft to inhibit a growth of suckers.

Allowable Subject Matter

Claims 15, 28, 29, and 44 – 46 were objected to as being dependent on a rejected base claim and would be allowable if presented in independent form. Applicant has presented arguments for patentability with regard to these claims, and wishes to put this objection in abeyance pending the Examiner's consideration of Applicant's reasons for patentability.

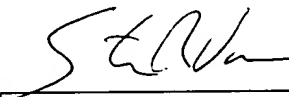
Claims 2 – 8 and 10 were objected to as being objected to as being dependent on a rejected base claim, but allowable if their independent claims are allowed. Applicant gratefully acknowledges the Examiner's withdrawal of the rejection of claims 1 and 9, and believes that claims 1 – 10 are now in condition for allowance.

The Examiner has indicated that claims 16 – 18 and 30 – 43 are allowed. Applicant gratefully acknowledges the Examiner's allowance of these claims.

If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (415) 409-2900.

No fee is due with this communication. The Commissioner is authorized to charge any fees, and to credit any overpayment of fees, associated with this application to Deposit Account No. 13-0201, referencing Atty. Docket No. 800132-0015.

Respectfully submitted,

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